

Government Polytechnic Sonapur

Session: 2024-2025

Discipline: Metallurgical Engineering	Semester: 5 th	Name of the Teaching Faculty: Amarjit Mohanta	
Subject: Non-Ferrous Metallurgy	Periods per week: 4	Semester from Date 01.07.2024 to 08.11.2024	
Week	Class No	Module	Lecture Topics
1	1	Non-ferrous ore Reserves and Non-ferrous Metal Industries in India.	Discuss the non-ferrous ore reserves in India
	2		Discuss the non-ferrous ore reserves in India
	3		Nonferrous industries in India.
	4		Non ferrous industries in India.
2	5	Extraction of Metals from Oxide ores.	Describe the Bayer's process of alumina production.
	6		Explain the fused salt electrolysis of alumina by Hall Heroult process.
	7		Explain the fused salt electrolysis of alumina by Hall Heroult process.
	8		Discuss anode effect
3	9		Explain the method of refining of aluminum
	10		State the uses of aluminum.
	11		Explain the process of tin ore concentration.
	12		Explain the process of tin ore concentration.
4	13		Explain the process of concentrate smelting for tin extraction.
	14		Explain the process of concentrate smelting for tin extraction.
	15		Describe the process of refining of tin.
	16		Describe the process of refining of tin.
5	17		State the uses of tin.
	18		State the uses of tin.

6	19	Extraction of Metals from Sulphide Ores.	Describe the process of roasting of copper ore.
	20		Describe the process of matte smelting of copper ore.
	21		Explain the process of converting of copper matte.
	22		Explain the refining of copper.
	23		State the uses of copper. Explain roasting and sintering of lead ore.
7	24		Explain the process of extraction of lead by blast furnace smelter.
	25		Describe in detail the process of refining of base bullion.
	26		State the uses of lead.
	27		Describe the roasting of zinc ore concentrate.
	28		Explain how zinc is extracted by vertical retort process.
8	29		Explain the refining of zinc.
	30		Explain the process of leaching and preparation zinc base solution
	31		Describe the electrolysis of zinc solution
	32		State the uses of zinc. Explain the roasting of nickel ore.
	33		Explain the method of smelting of nickel concentrate.
9	34		Explain the method of refining of nickel
	35		State the uses of nickel.
	36		Class Test
	37	Extraction of Metals from Halides	Describe extraction of titanium
	38		Explain the type of treatment given to titanium ore.
10	39		Explain the type of treatment given to titanium ore.

11	40		Explain the process of chlorination and mag. reduction for titanium extraction.
	41		Explain the process of chlorination and mag. reduction for titanium extraction.
	42		Explain the process of refining of titanium (distillation)
	43		Explain the process of refining of titanium (distillation)
	44		State the uses of titanium
12	45	Extraction of Precious Metals	Revision
	46		Class Test
	47		Explain extraction of gold.
	48		Explain extraction of gold.
13	49		Explain the process of cyanidation for gold extraction
			Explain the process of cyanidation for gold extraction
			State the uses of gold.
			State the uses of gold.
14	50	Production of Secondary Metals.	Explain the process of production of copper
	51		Explain the process of production of lead
	52		Explain the process of production of Zinc
	53		Explain the process of production of Aluminum
15	54		Explain the process of production of Aluminum
	55		Revision
	56		Class Test
	57		Important Question discussion

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